

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/BR2004/000240

International filing date (day/month/year)
02.12.2004

Priority date (day/month/year)
05.12.2003

International Patent Classification (IPC) or both national classification and IPC
F04B35/04, F04B49/06

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/BR2004/000240

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Cited Documents

1. Reference is made to the following documents:

D1 : US-B1-6 176 683

D2 : US 2003/161734

D3 : US 2003/219341

2. As far as claim 1 can be understood (see item 3 below), the following comments about the claims can be made:

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document D1 discloses a fluid pump controlling system, the fluid pump 400 comprising a piston displaceably positioned in a cylinder, the cylinder having a piston displacement stroke and the cylinder having a stroke end, the system being characterized by comprising:
a sensing assembly 500 measuring the behaviour of the piston, and
an electronic controller 600 associated to the sensing assembly 500, the electronic controller 600 monitoring the displacement of the piston within the cylinder by detecting an impact signal, the impact signal being transmitted by the sensing assembly 500 upon occurrence of an impact of the piston with the stroke end, the impact signal being transmitted by the sensing assembly 500 to the electronic controller 600, the electronic controller 600 successively incrementing the piston displacement stroke from a trigger signal until the occurrence of the impact to store a maximum value of piston displacement corresponding to the piston displacement as far as the stroke end.

Thus, the subject-matter of claim 1 is not novel (Article 33(2) PCT).

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/BR2004/000240

3. The wording used in the last paragraph of claim 1 is unclear "...from the trigger signal..." it is unclear because the trigger signal had not previously been defined, it is suggested to replace the sentence with "...from a trigger signal...", furthermore the claim as a whole leads to unclarity because the claim refers to the category "apparatus" (electronic controller) but contains features referring to the category "method" (incrementing) which leads to confusion as to which features are actually claimed. This clarity objection could be overcome by including structural elements which define how the controller leads to the step of incrementing/decrementing the piston (eg: adjusting the value of the voltage fed to the motor) (Article 6 PCT).

4. In addition, for the same analogous reasons explained under item 2 the subject-matter of independant apparatus claim 12 is also not novel.

Hence, claim 12 not novel (Article 33(2) PCT).

3. For the same analogous reasons as given under item 2 the subject-matter of independant method claims 18 and 27 are not novel.

Hence, claims 18 and 27 are not novel (Article 33(2) PCT).

4. Independent claim 30 is directed to a linear compressor using the system of claim 1 and for the same analogous reasons explained under item 2 the subject-matter of claim 30 is also not novel.

Hence, claim 30 is not novel (Article 33(2) PCT).

5. The subject-matter of dependent claims 2-11,13-17,19-26,28,29 and 31 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to novelty and inventive step, in the light of the disclosure in documents D1-D2

6. a) The Independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT with those features known in combination from the prior art D1 being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/BR2004/000240

included in the characterising part (Rule 6.3(b)(ii) PCT).

b) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1-D3 is not mentioned in the description, nor is this document identified therein.

c) In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8 (a) PCT).

7. a) The word "associated" used in claims 1, 6, 7, 9, 10, 14, 16 and 17 does not give logical sense to the claims, rendering therefore the subject-matter of the claims unclear (Article 6 PCT).

b) Although claims 1 and 12 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

Claim 12 comprises of all the features of claim 1 and are therefore not appropriately formulated as claims dependent upon the latter (Rule 6.4 PCT). The above also applies to method claims 18 and 27. Claim 27 comprises of all the features of claim 18 and is therefore not appropriately formulated as a claim dependent upon the latter (Rule 6.4 PCT).